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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,765	08/30/2001	Vernon M. Williams	4303-1US (99-0584.1)	2595

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EXAMINER
DAVIS, ROBERT B

ART UNIT	PAPER NUMBER
1722	

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/943,765	WILLIAMS, VERNON M.	
	Examiner	Art Unit	
	Robert B. Davis	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,4,7,8 and 12-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,4,7,8 and 12-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7
4) ☐ Interview Summary (PTO-413) Paper No(s) _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other

Response to Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3, 7, 12, 15, 16, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji et al (5,293,072: figures 3A, 3B, 4F and 5; and column 3, line 66 to column 4, line 44) taken together with Japanese reference (6-151,492: figures 1 and 7-9 and abstract).

Tsuji et al disclose a two part mold (43) having a first molding member (43a) and a second molding member (43b) forming cavities (43c, 43d), wherein the second molding member has a plurality recesses (45) to accommodate conductive structures (33) during the molding step to form a product as shown in figures 3A and 3B which has the conductive structures protruding from the molded resin (32). The reference does not disclose the molding cavity having a vertical orientation.

The Japanese reference (-492) discloses an encapsulation mold comprising: first and second mold members (1, 2) having a cavity (13) therebetween extending in a vertical direction as shown in figures 7-9, an injection gate (11) formed at the bottom of the cavity and a vent (7) positioned at the top of the cavity. The reference further teaches a plurality of molding cavities per mold member as shown in figure 1. The vent (7) at the top of the molding cavity (13) allows for air bubbles present in the resin

injected into the bottom of the cavity to escape to prevent the formation of voids in the molded product to reduce the number of defective products produced by the apparatus.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Tsuji et al by positioning the cavity vertically such that the injection gate is positioned at the bottom of the cavity and a vent is positioned at the top of the cavity as disclosed by the Japanese reference (-492) for the purpose of preventing the formation of voids by suppressing the resistance to filling of the molding cavity by changing the orientation of the cavity. It would have been further obvious to modify the mold of Tsuji et al to form a plurality of articles simultaneously as disclosed by the Japanese reference (-492) for the purpose of increasing the number of products produced.

3. Claims 4, 8, 13, 14, 17, 19 and 22- 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Tsuji et al (5,293,072: figures 6A-6D and column 4, line 51 to column 5, line 29) or Tsunoda et al (5,914,531: figures 36B, 46A-47A and column 13, line 61 to column 14, line 2) taken together with Japanese reference (6-151,492: figures 1 and 7-9 and abstract).

Tsuji et al disclose a two part mold (50) having a first molding member (50a) and a second molding member (50b) forming cavities (50c, 50d), wherein the second molding member has a plurality protrusions (51) to support conductive structures (34) during the molding step to form a product as shown in figure 6C which leaves the portion of the conductive structures free from molded resin (32) where connectors (33)

are placed after molding. The reference does not disclose the molding cavity having a vertical orientation.

Tsunoda et al disclose opposing molds (20 and 21) forming a cavity (17) wherein the mold (21) has protrusions (22) spaced to support terminal surfaces (66 in figure 47A) such that resin does not cover the terminal surfaces. The reference does not disclose the molding cavity having a vertical orientation.

The Japanese reference (-492) discloses an encapsulation mold comprising: first and second mold members (1, 2) having a cavity (13) therebetween extending in a vertical direction as shown in figures 7-9, an injection gate (11) formed at the bottom of the cavity and a vent (7) positioned at the top of the cavity. The reference further teaches a plurality of molding cavities per mold member as shown in figure 1. The vent (7) at the top of the molding cavity (13) allows for air bubbles present in the resin injected into the bottom of the cavity to escape to prevent the formation of voids in the molded product to reduce the number of defective products produced by the apparatus.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of either Tsuji et al or Tsunoda et al by positioning the cavity vertically such that the injection gate is positioned at the bottom of the cavity and a vent is positioned at the top of the cavity as disclosed by the Japanese reference (-492) for the purpose of preventing the formation of voids by suppressing the resistance to filling of the molding cavity by changing the orientation of the cavity. It would have been further obvious to modify the mold of Tsuji et al to form a plurality of articles

simultaneously as disclosed by the Japanese reference (-492) for the purpose of increasing the number of products produced.

Response to Arguments

4. Applicant's arguments with respect to claims 3, 4, 7, 8 and 12-27 have been considered but are moot in view of the new ground(s) of rejection.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining references show various encapsulating molds.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Davis whose telephone number is 703-308-2625. The examiner can normally be reached on Monday-Friday 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Robert B. Davis
Primary Examiner
Art Unit 1722

6/10/03